FIG. 1

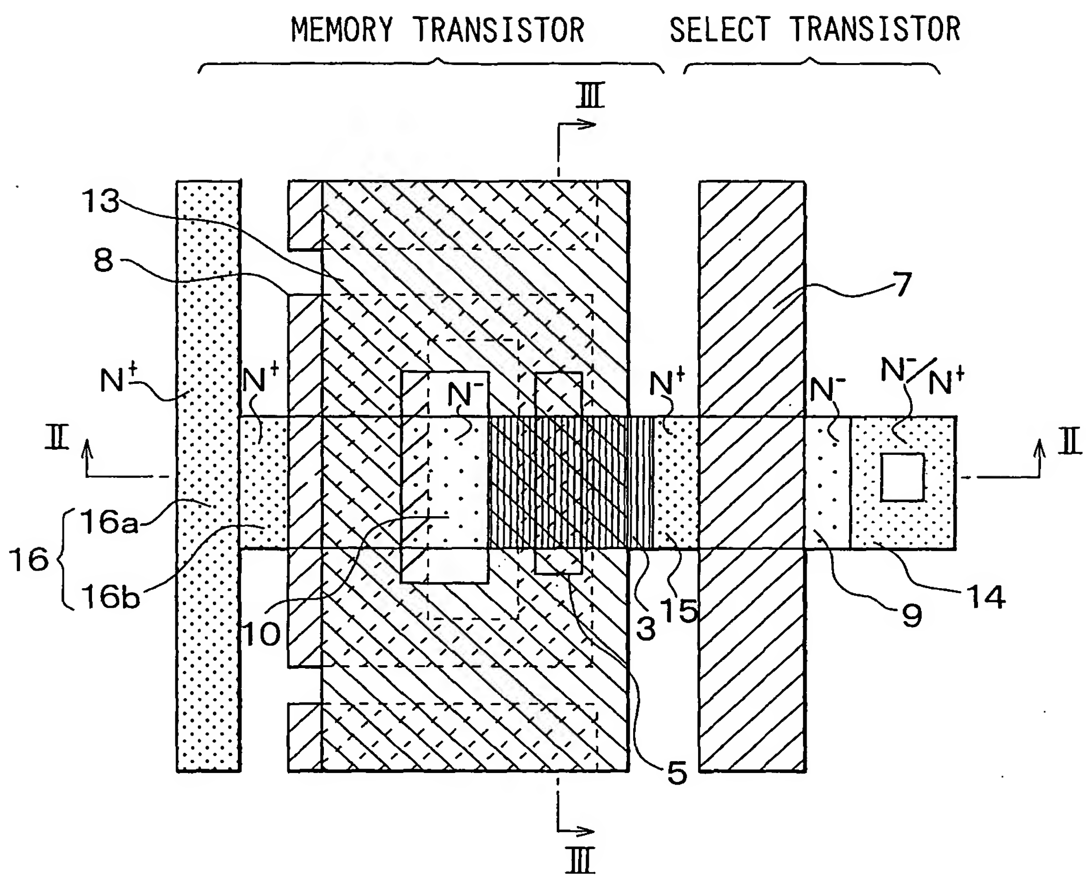

MEMORY TRANSISTOR
SELECT TRANSISTOR
III
13
8
7
N+
N+
N-
N+
N-
N-/N+
II
II
16
16a
16b
10
3
15
9
14
5
III

FIG. 2

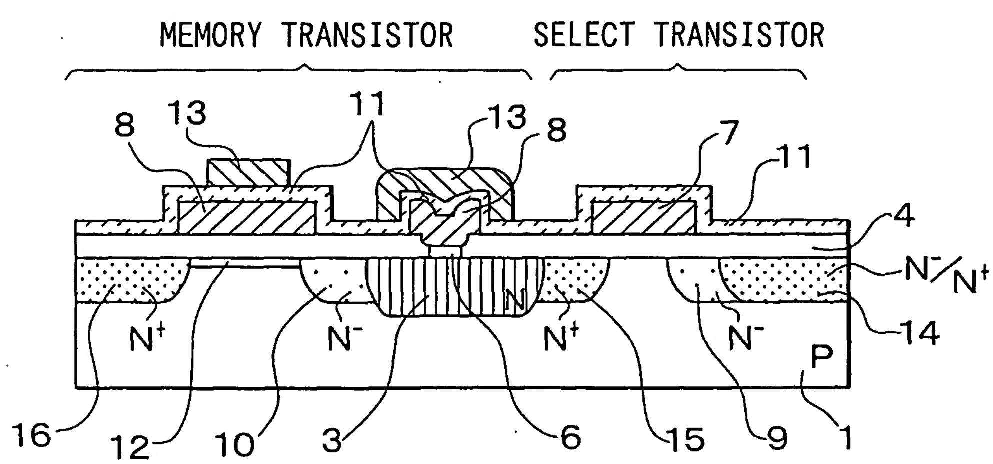

MEMORY TRANSISTOR
SELECT TRANSISTOR
8
13
11
13
8
7
11
4
N-/N+
N+
N-
N
N+
N-
14
P
16
12
10
3
6
15
9
1

FIG. 3

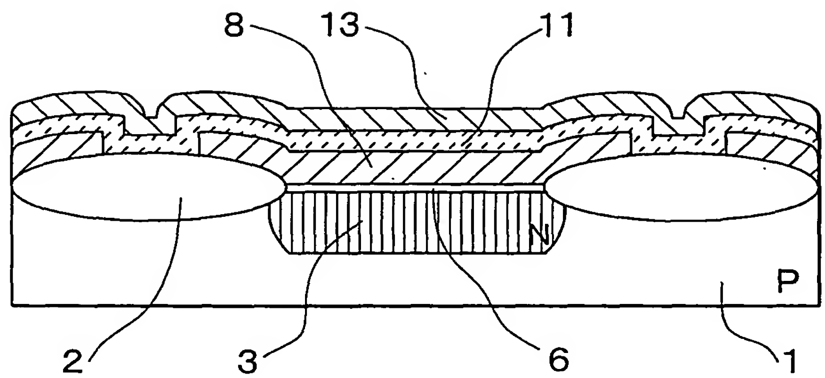


FIG. 4A

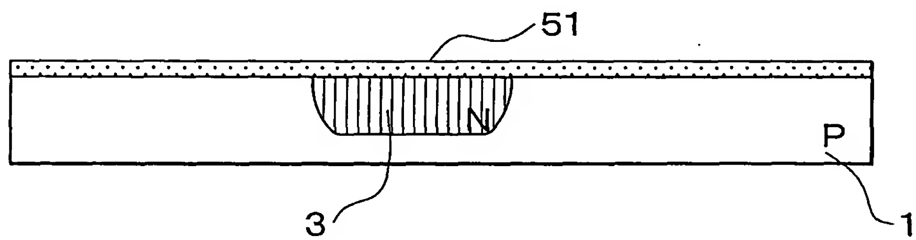


FIG. 4B

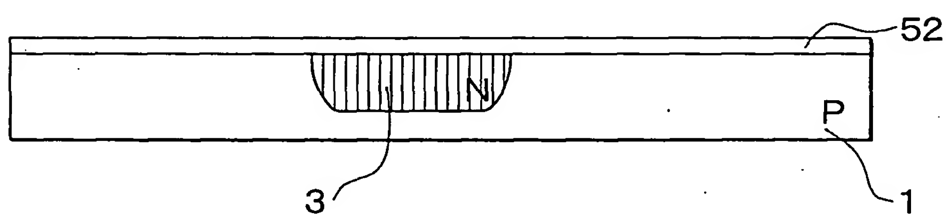


FIG. 4C

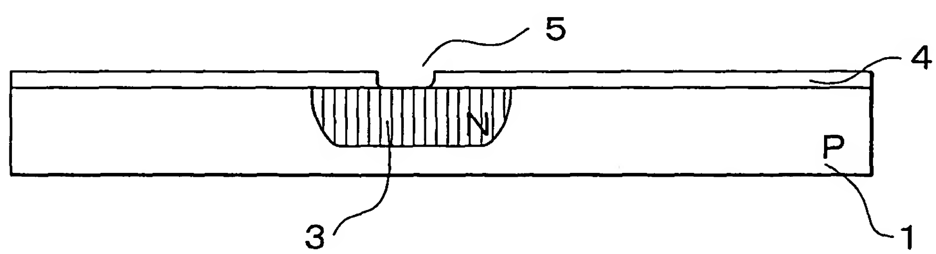


FIG. 4D

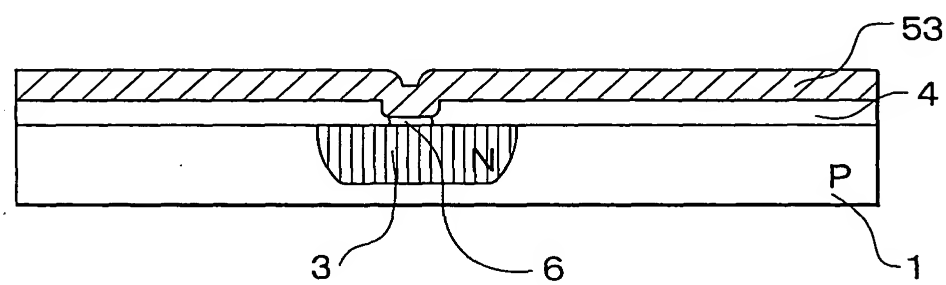


FIG. 5A

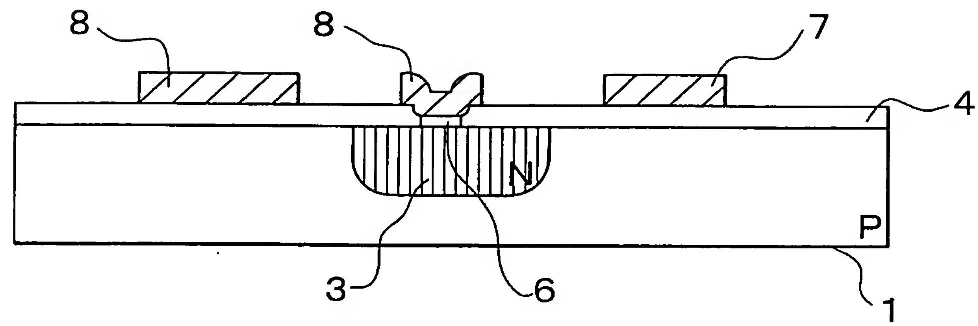


FIG. 5B

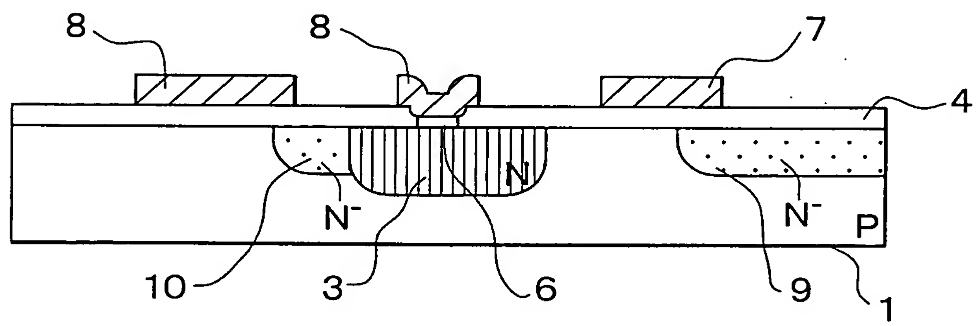


FIG. 5C

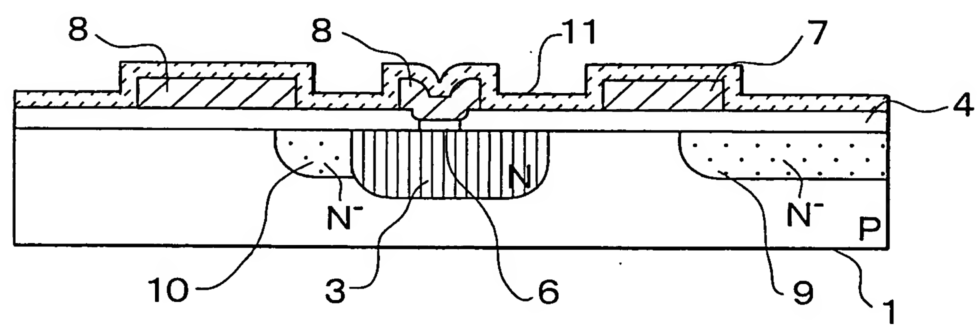


FIG. 6A

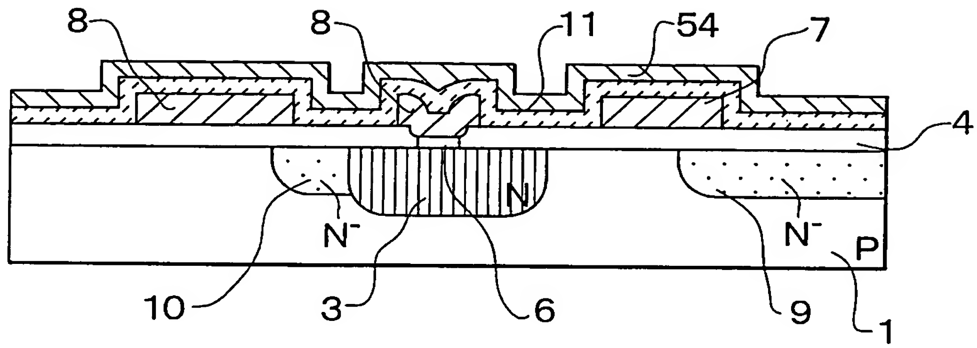


FIG. 6B

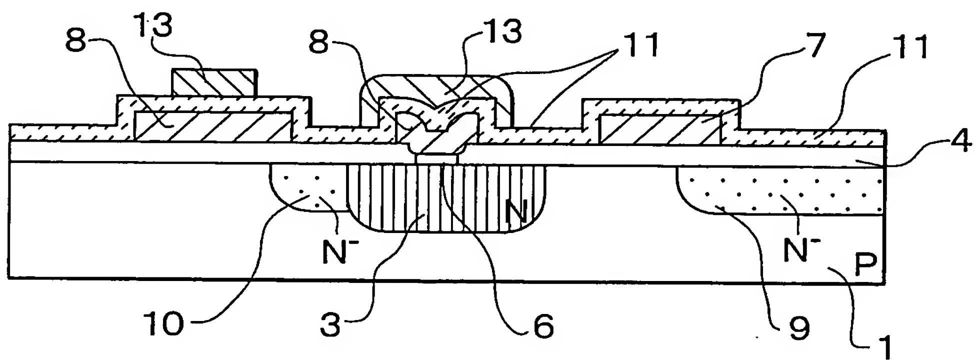
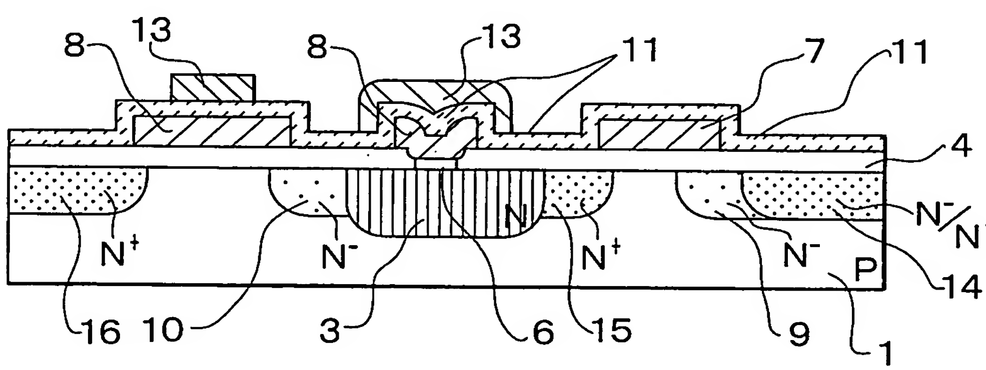


FIG. 6C



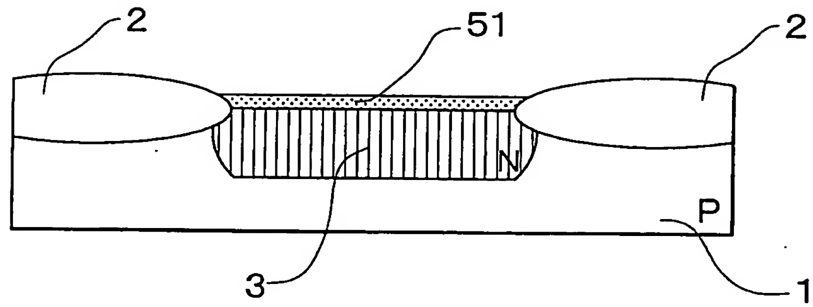


FIG. 7A

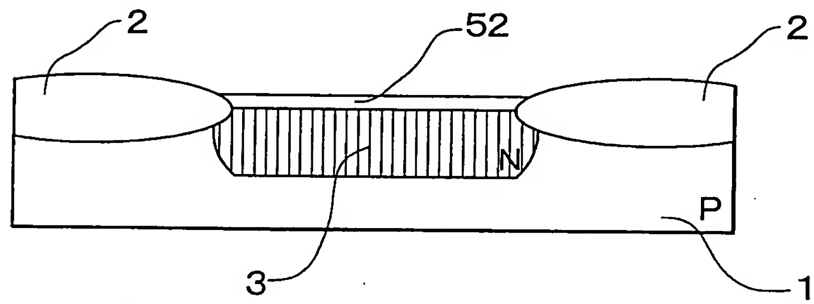


FIG. 7B

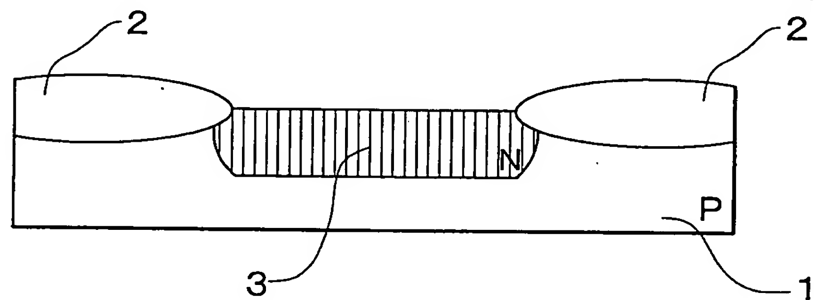


FIG. 7C

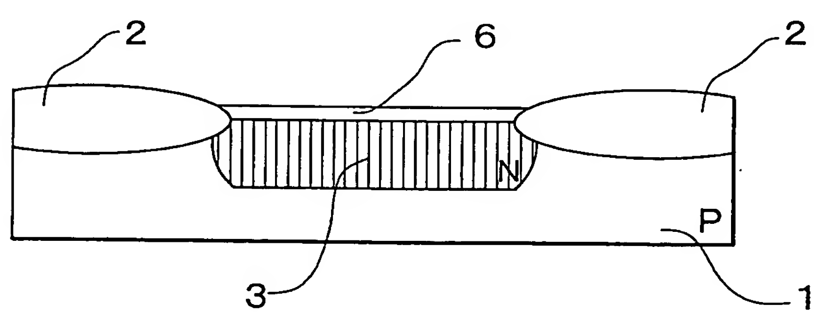


FIG. 7D

FIG. 8A

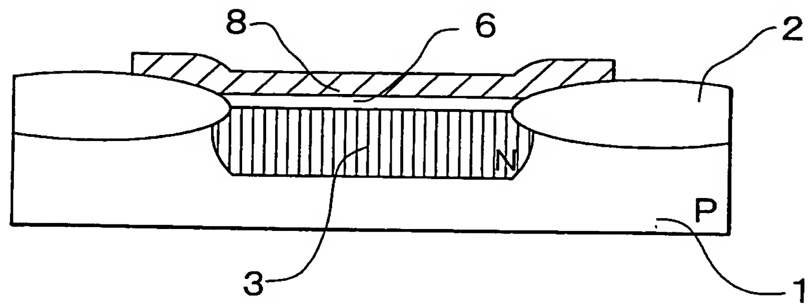


FIG. 8B

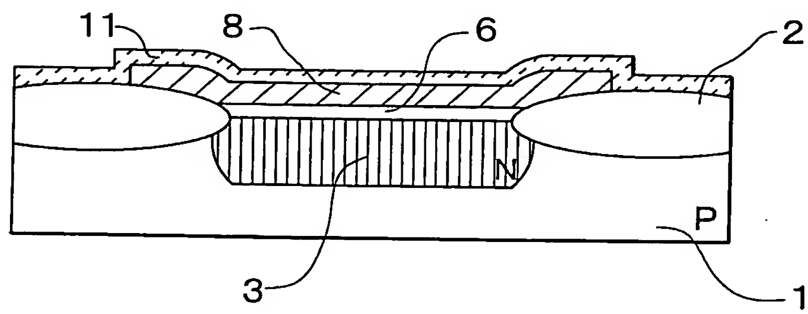


FIG. 8C

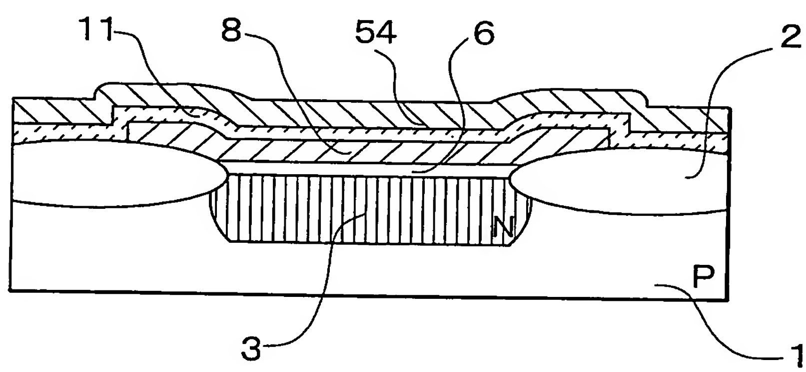


FIG. 8D

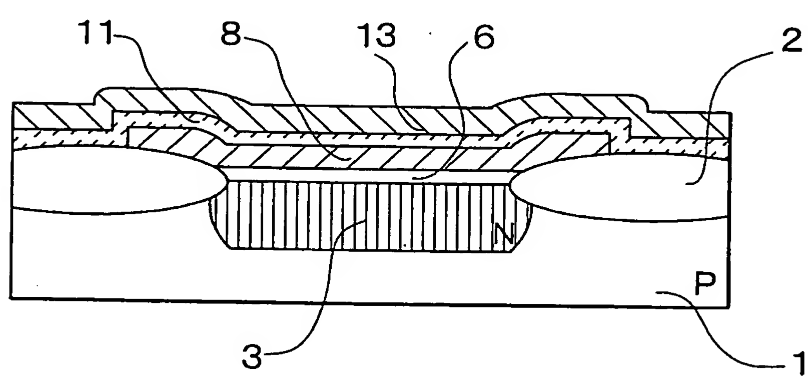


FIG. 9

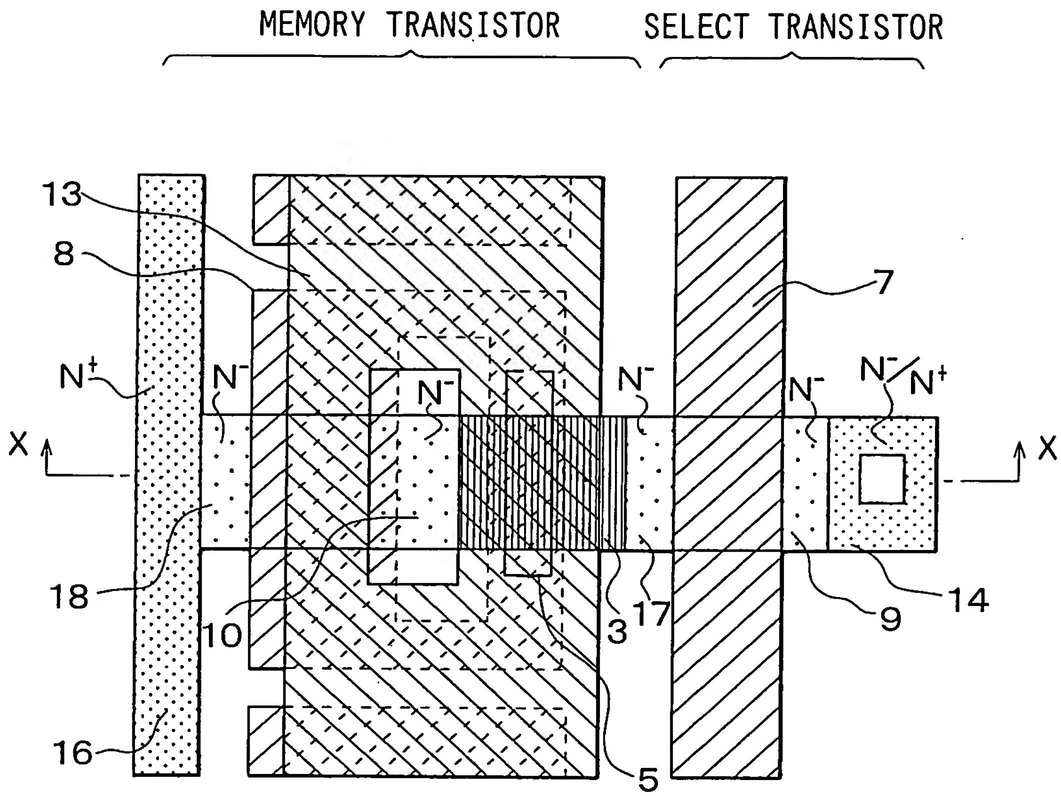

MEMORY TRANSISTOR
SELECT TRANSISTOR
13
8
7
N+
N-
N-
N-
N-
N-/N+
X
X
18
10
3
17
9
14
16
5

FIG. 10

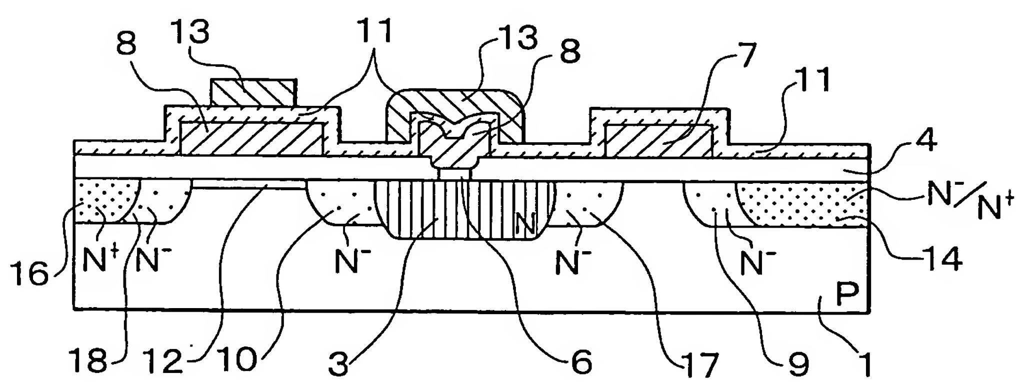

8
13
11
13
8
7
11
4
N-/N+
14
16
N+
N-
N-
N
N-
N-
P
18
12
10
3
6
17
9
1

FIG. 11A

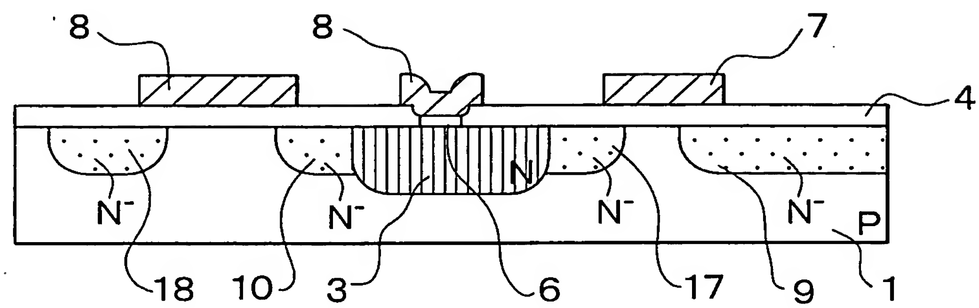


FIG. 11B

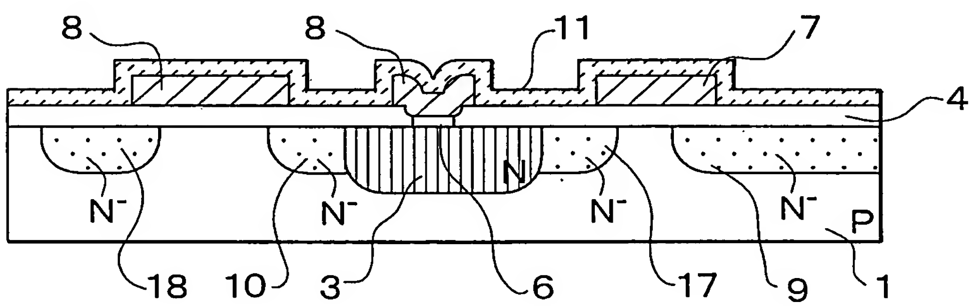


FIG. 12A

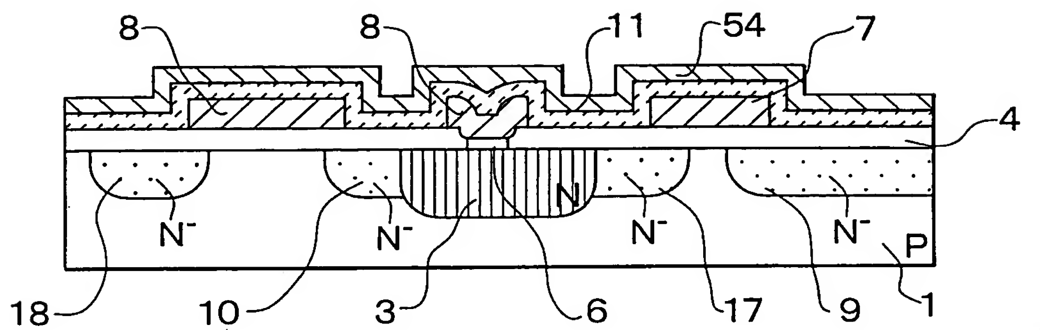


FIG. 12B

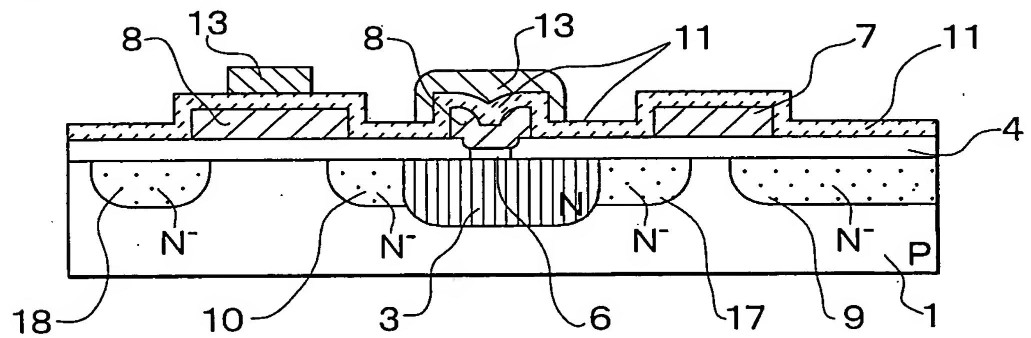


FIG. 12C

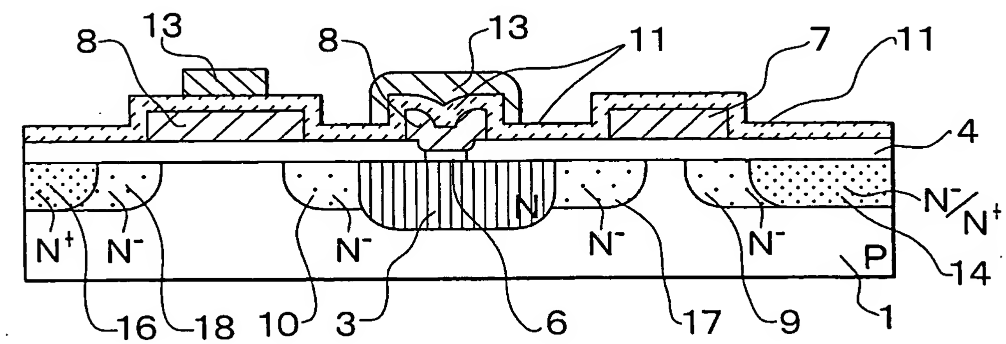


FIG. 13

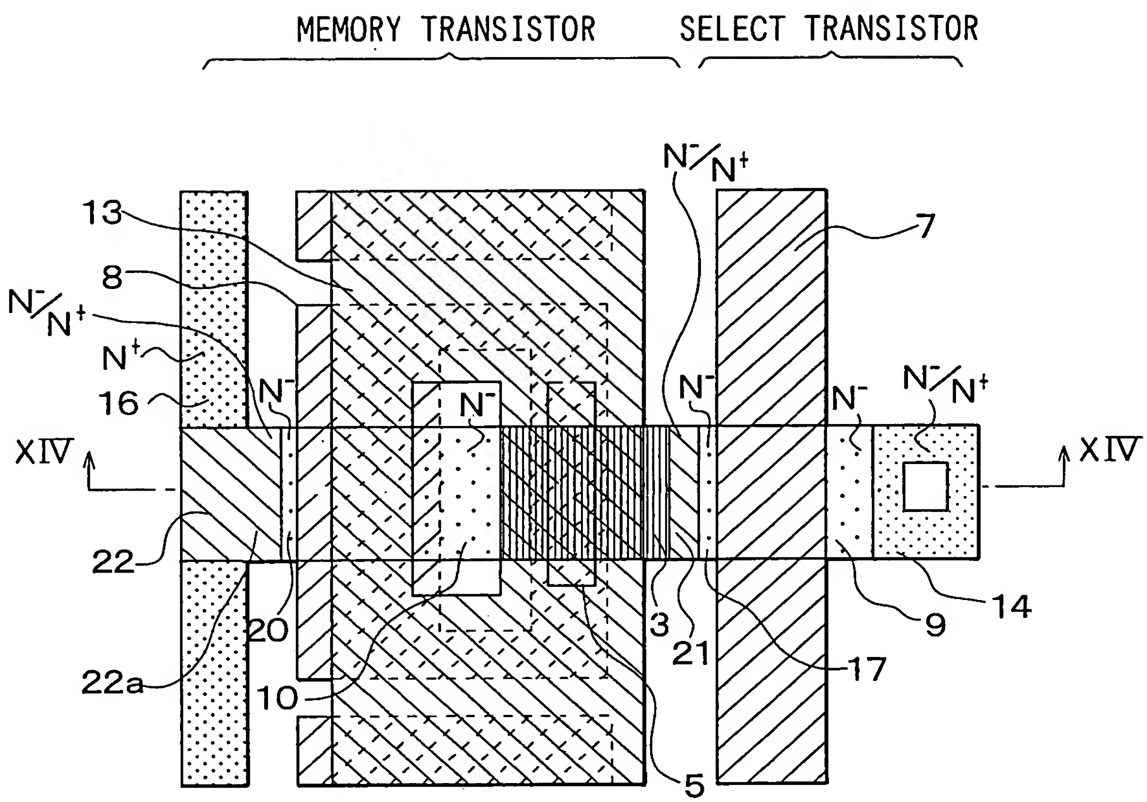

MEMORY TRANSISTOR
SELECT TRANSISTOR
N⁻/N⁺
13
7
8
N⁻/N⁺
N⁺
N⁻
N⁻
N⁻
N⁻
N⁻/N⁺
16
XIV
XIV
22
20
3
21
9
14
17
22a
10
5

FIG. 14

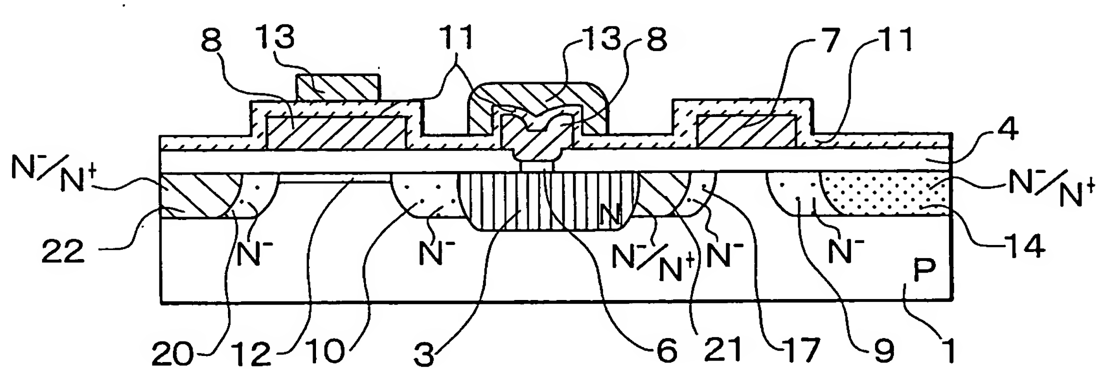

8
13
11
13
8
7
11
4
N⁻/N⁺
N⁻/N⁺
22
N⁻
N⁻
N
N⁻/N⁺
N⁻
N⁻
14
P
20
12
10
3
6
21
17
9
1

FIG. 15A

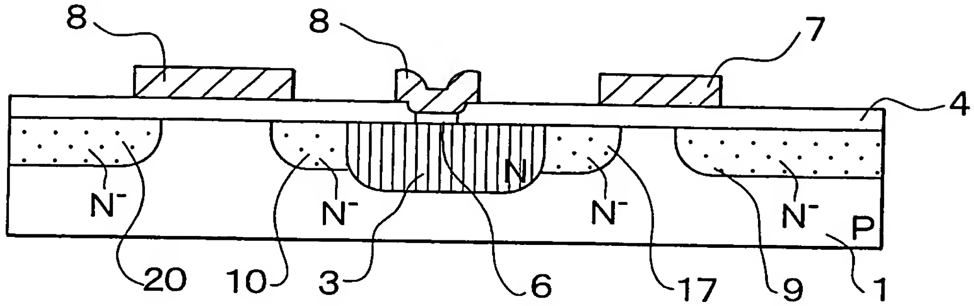


FIG. 15B

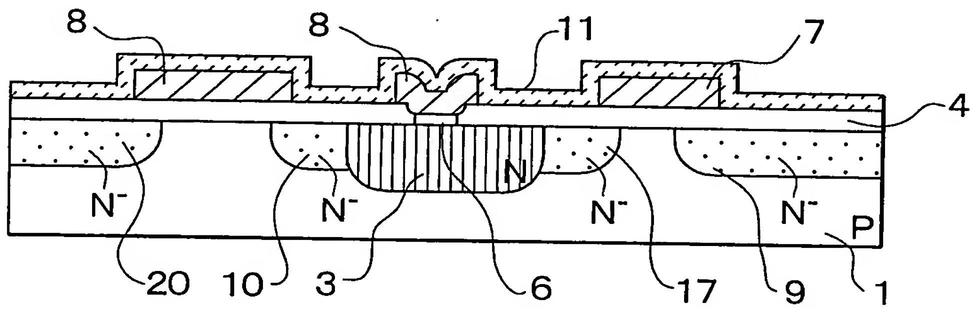


FIG. 16A

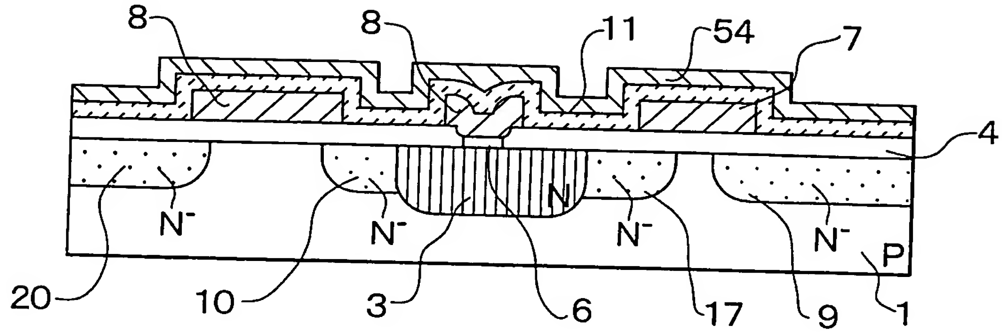


FIG. 16B

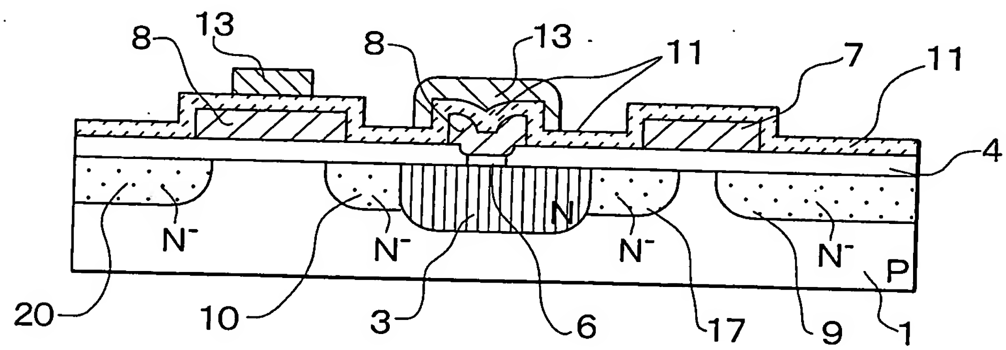


FIG. 16C

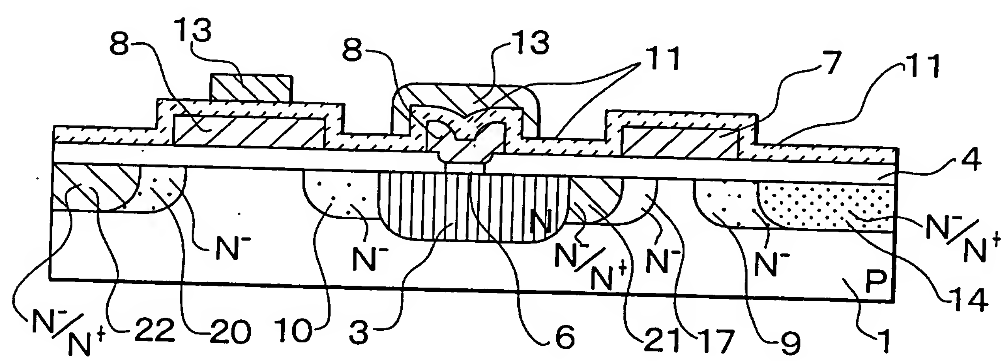


FIG. 17

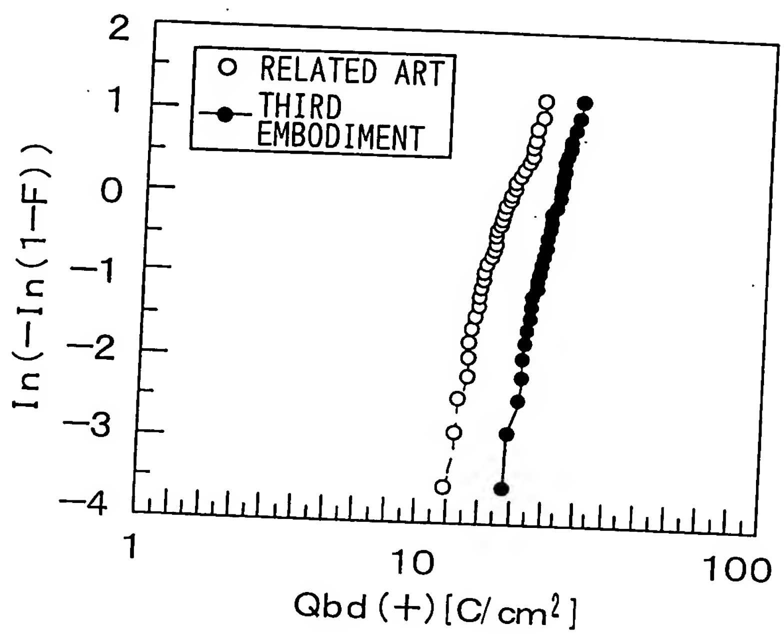

RELATED ART
THIRD EMBODIMENT
2
1
0
−1
−2
−3
−4
In(−In(1−F))
1
10
100
Qbd (+) [C/cm2]

FIG. 18

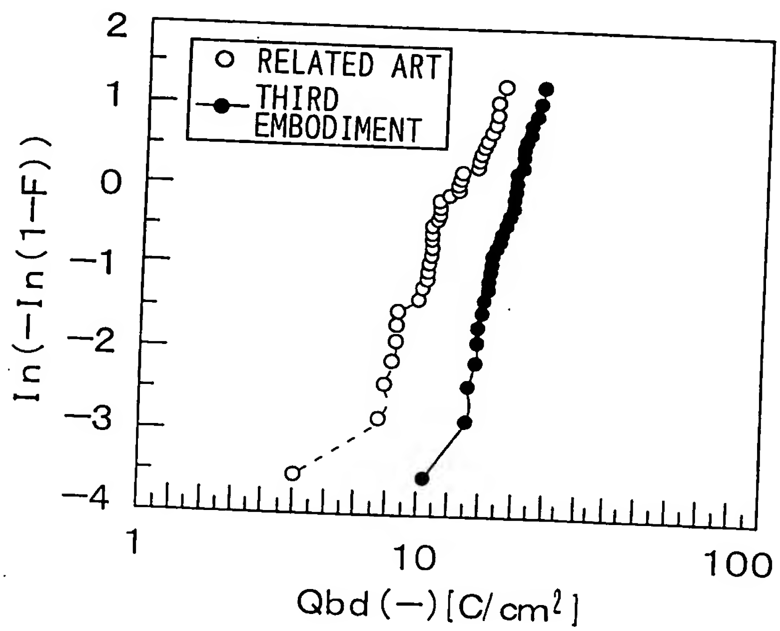

RELATED ART
THIRD EMBODIMENT
2
1
0
−1
−2
−3
−4
In(−In(1−F))
1
10
100
Qbd (−) [C/cm2]

FIG. 19

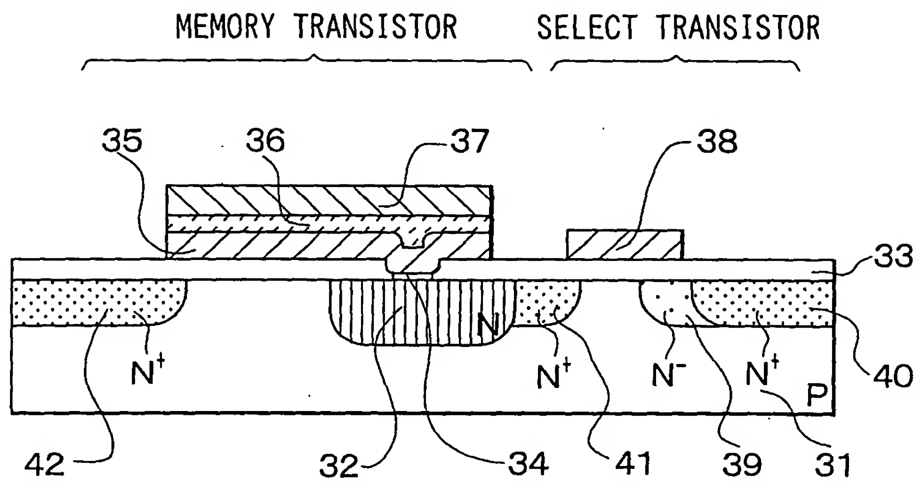
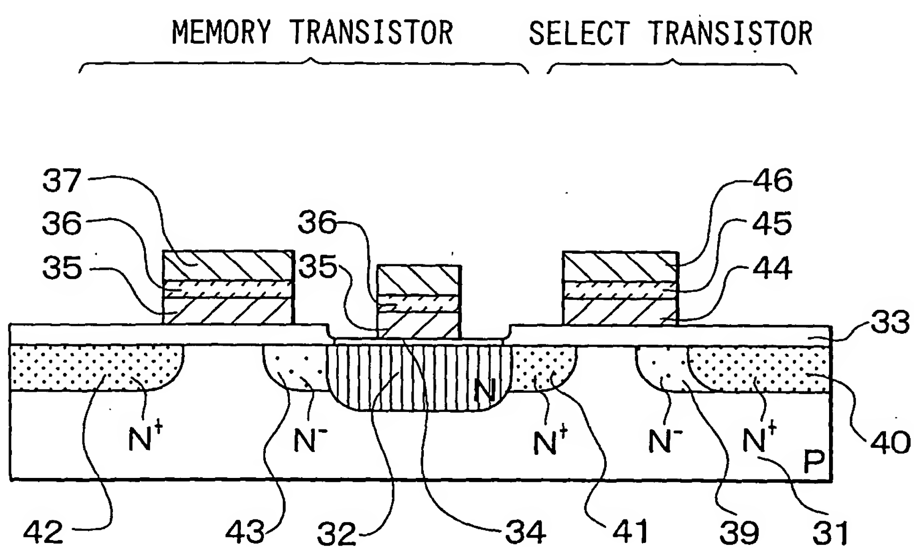

MEMORY TRANSISTOR
SELECT TRANSISTOR
35
36
37
38
33
N
N+
N+
N-
N+
P
40
42
32
34
41
39
31

FIG. 20


MEMORY TRANSISTOR
SELECT TRANSISTOR
37
36
35
36
35
46
45
44
33
N
N+
N-
N+
N-
N+
P
40
42
43
32
34
41
39
31